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Sent: 5/22/2012 3:04:34 PM

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CC:
Subject: Environmental Impacts During Marcellus Shale Gas Drilling: Causes, Impacts and Remedies

interesting analysis of incidents by the SUNY/Univ. at Buffalo Shale Resources and Society Institute....

http://www.buffalo.edu/ubreporter/2012_05_17/shale_violations

Institute examines fracking violations

By CORY NEALON
Published: May 17, 2012

UB's Shale Resources and Society Institute has issued a report, "Environmental Impacts During Shale Gas Drilling: Causes, Impacts and Remedies," (1.3 MB) that offers the first quantitative data review of Pennsylvania's regulation of hydraulic fracturing of natural gas.

The report's authors—institute Director John P. Martin, University of Wyoming professor Timothy J. Considine and Pennsylvania State University professor emeritus Robert W. Watson—examined 2,988 violations from nearly 4,000 natural gas wells processed by the Pennsylvania Department of Environmental Protection from January 2008 through August 2011.

They found that 1,844 of the violations, or 62 percent, were administrative and preventative in nature. The remaining 1,144 violations, or 38 percent, were environmental in nature. The environmental violations were the result of 845 events, with 25 classified as "major" environmental events. The report defines major environmental events as major site restoration failures, serious contamination of local water supplies, major land spills, blowouts, and venting and gas migration.

The authors found that the percentage of environmental violations in relation to the number of wells drilled declined from 58.2 percent in 2008 to 30.5 percent in 2010. The number dropped to 26.5 percent during the first eight months of 2011. The report suggests that Pennsylvania's regulatory approach has been effective at maintaining a low probability of serious environmental events and in reducing the frequency of environmental violations.

"This study presents a compelling case that state oversight of oil and gas regulation has been effective," says lead author Considine. "While prior research has anecdotally reviewed state regulations, now we have comprehensive data that demonstrates, without ambiguity, that state regulation coupled with improvements in industry practices result in a low risk of an environmental event occurring in shale development, and the risks continue to diminish year after year."

The authors also analyzed how the violations and environmental events that occurred in Pennsylvania would be dealt with by emerging regulations, such as those under review in New York. They found that the proposed regulatory framework in New York could help avoid or mitigate the 25 major events identified in Pennsylvania.

"New York's current regulations would prevent or mitigate each of the identified major environmental events that occurred in Pennsylvania," Martin says. "It's important that states continue to learn from

the regulatory experience—both strengths and weaknesses—of others."

Watson concludes that "remedial actions taken by operators largely mitigated the environmental impacts of environmental events. Only a handful of events resulted in environmental impacts that have not yet been mitigated."

Drafts of the report were reviewed by several individuals with expertise in related areas, who provided comments to the authors. They are:
•Andrew Hunter, a lecturer at Cornell University's School of Chemical and Biomolecular Engineering
•Brigham McCown, a former U.S. Department of Transportation executive and consultant with United Transportation Advisors
•George Rusk, a regulatory specialist at Ecology and Environment Inc.
•Scott Anderson, senior policy advisor with the Environmental Defense Fund's Energy Program
•Robert Jacobi, co-director of the Shale Resources and Society Institute, and longtime UB professor of geology.

The Shale Resources and Society Institute's goal is to provide accurate, research-based information on the development of shale gas and other unconventional energy sources. The institute conducts and disseminates peer-reviewed research that can help guide policymakers on issues relating to hydraulic fracturing.

This is the first report produced by the Shale Resources and Society Institute, which is funded by UB. The work of the institute was not funded or commissioned by external sources.